Navigating the Next Industrial Revolution: The Political Economy of Cooperatives in Kerala, India

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Abstract

This article examines the evolving role of cooperatives in Kerala, India, within the broader context of the Fourth Industrial Revolution (Industry 4.0). Historically, cooperatives have played a pivotal role in Kerala's socio-economic development, contributing significantly to inclusive growth and poverty alleviation. However, as technological disruptions reshape the global economy, the sustainability and relevance of these cooperatives are being increasingly challenged. This paper analyzes both the challenges and opportunities faced by Kerala's cooperatives, offering insights into how they can adapt to the transformations brought about by Industry 4.0. Drawing on a blend of theoretical analysis and empirical data, the article argues that innovation and policy intervention are critical to ensuring that cooperatives continue to serve as vital agents of economic growth and social welfare in Kerala's evolving political economy.

Keywords: Cooperatives, Political Economy, Next Industrial Revolution, Technological Advancements, Politico-Bureaucratic Nexus.

1. Introduction

The global economy stands at the brink of the Fourth Industrial Revolution, marked by the integration of advanced technologies such as artificial intelligence (AI), robotics, the Internet of Things (IoT), and blockchain across various sectors. This revolution promises to transform industries, disrupt labour markets, and reshape economic relationships. However, the uneven distribution of these technological advancements presents significant challenges, particularly in regions with deeply entrenched socio-economic systems. Kerala, with its long-standing cooperative movement, represents a unique case study of how these changes can impact traditional sectors. While the Fourth Industrial Revolution brings opportunities for growth and innovation, Kerala's cooperative sector faces mounting pressures to adapt. The sector's ability to embrace digital transformation will be critical to maintaining its relevance and addressing the socio- economic challenges of the future. Cooperatives and mutual organizations have long played a key role in organizing transactions across various economies. *The Handbook of Research on Cooperatives and Mutuals* (Matthew & Michael 2023) highlights the need for continued research and collaboration on these organizations, encouraging both public and private investment. They suggest that global cooperation, including the possibility of international conferences, could help advance research and address the complex regional dynamics that influence the performance of cooperatives and mutuals, positioning them as effective solutions to economic and societal challenges.

Cooperatives play a crucial role in societies worldwide, deeply influencing various aspects of life. A

study by Dave Grace & Associates (2014) found a strong correlation between countries with robust cooperative economies and high social progress, with two-thirds of the top ten cooperative economies also ranking highly on the Social Progress Index (SPI). Cooperatives have also been proven to enhance economic and financial stability during crises, such as the 2008 financial crisis (Čihák, 2007) and the COVID-19 pandemic. In the book 'The Political Economy of Cooperatives and Socialism', Bruno Jossa (2020) argues that cooperatives, with their democratic structure and worker ownership, can serve as a viable alternative to capitalism and a pathway toward socialism. He suggests that cooperatives offer a model that reconciles economic efficiency with social equity, promoting both individual autonomy and collective decision-making, which could address the shortcomings of traditional capitalist systems. According to the International Cooperative Alliance (ICA), at least 12% of the global population are members of one of the 3 million cooperatives worldwide. Cooperatives provide jobs or work opportunities to 10% of the employed population, and the three hundred largest cooperatives or mutuals generate a turnover of 2,409.41 billion USD while offering essential services and infrastructure for societal progress (ICA, 2023).

Despite these global successes, a closer look at the World Cooperative Monitor (2023) shows that cooperatives in developing countries, including India, have yet to emerge as a significant force compared to their role in developed capitalist economies, where they counterbalance corporate power. This underscores the importance of innovation and adaptation for Kerala's cooperative sector, especially as it faces the demands of the Fourth Industrial Revolution and digital transformation.

2. Importance of Cooperatives in Kerala

Cooperatives in Kerala have long played a pivotal role in promoting economic equity, particularly in rural areas. Deeply integrated into the state's socio-political fabric, the cooperative movement has served as a mechanism for collective bargaining, resource pooling, and building social capital. Agricultural cooperatives support small-scale farmers, while credit cooperatives provide essential financial services to marginalized communities, driving Kerala's unique model of development. The Kerala State Planning Board estimates the cooperative sector's contribution to the state's GDP at around 10-12%. As of the latest reports, cooperative societies in Kerala have mobilized deposits exceeding ₹1.25 lakh crore (₹1,250 billion; approximately USD 15 billion), demonstrating their crucial role in the state's economy (GoK, Economic Review 2023).

Unlike global trends of centralized, technology-driven industrial growth, Kerala's cooperatives present a more community-centric economic model. As industries worldwide face automation and the potential displacement of traditional labour, Kerala's cooperative sector prioritizes collective ownership and social equity, offering an alternative approach to navigating the changes brought by the Fourth Industrial Revolution. While the revolution introduces growth opportunities, it also poses risks of inequality and job displacement—challenges Kerala's cooperatives must address while staying true to their core values of democratic management and local control.

With over 17,000 working cooperative societies (see Table 1), Kerala's cooperative sector spans multiple industries, including agriculture, dairy, fisheries, banking, and retail, providing vital support to small-scale farmers and artisans[i]. Political backing, particularly from leftist movements, has been integral to the sector's success, as cooperatives are seen as tools to counterbalance capitalist models. The supportive role of the state government has also been crucial, with favourable policies, financial aid, and a commitment to ensuring democratic governance within cooperatives. As noted in the Economic Survey of Kerala, the growth of cooperatives has contributed to the achievement of key Sustainable Development Goals (SDGs), such as poverty alleviation, food security, gender equality, and climate action (Government of Kerala, 2024).

However, while the Kerala State Cooperative Policy envisions a sustainable and equitable cooperative movement, there are notable deviations from core cooperative principles, particularly those outlined by the ICA. The policy's vision and mission statements emphasize collaboration with the government, but there is a need to more explicitly reinforce democratic governance, autonomy, and member education. Ensuring that cooperatives maintain their independence and prioritize member participation is vital for safeguarding their foundational values. Moreover, fostering cooperation among cooperatives would strengthen the movement and ensure it continues to benefit society while promoting local economic development.

Table -1 Number Statement of Type-wise Co-operative Societies in Kerala (as of 31-03-2023)

Sl No	Type of Societies	Total	Of which					
			Working	Working Percen	Dormant	Dormant Percen	Under Liquidation	Under Liquidation %
1	Apex Societies / Banks	11	11	*100*	0	*0*	0	*0*
2	Federal Societies	13	11	*84.62*	2	*15.38*	0	*0*
3	Central Banks	1	1	*100.00*	0	*0.00*	0	*0*
4	Credit Societies/ Banks	4145	3655	*88.18*	377	*9.10*	113	*2.73*
5	Consumer Societies	20	15	*75.00*	3	*15.00*	2	*10.00*
6	Primary Societies	4609	3749	*81.34*	752	*16.32*	108	*2.34*
7	Marketing and & Processing Socs.	625	235	*37.60*	324	***51.84***	66	***10.56***
8	Miscellaneous societies	6928	4564	*65.88*	2008	***28.98***	356	***5.14***
9	**TOTAL (Under RCS)**	**16352**	**12241**	***74.86***	**3466**	*21.20*	**645**	*3.94*
10	No. of Dairy Coops (APCOS + Non Apcos(Under Dairy Dept)	**3610**	3370	***93.35***	240	*6.65*	0	*0.00*
11	Number of Hanloom Coops	**532**	335	62.97	115	21.62	82	15.41
12	No. Coir Coops	**1103**	546	***49.50***	286	*25.93*	271	*24.57*
13	No. Fisheries Coops (Matysfed)	**651**	651	***100.00***	-	*0.00*	-	*0.00*
14	Number of Industrial Coops	367	367	***100.00***	-	*0.00*	-	*0.00*
	TOTAL of all cooperatives	**22615**	**17510**	***77.43***	**4107**	*18.16*	**998**	*4.41*

Note: Data on dormant and under-liquidation cooperatives in the Fisheries and Industrial sectors is unavailable.

Source: (i) Government of Kerala, (2023). NUMBER STATEMENT OF TYPE WISE CO-OPERATIVE SOCIETIES, Department of Co-operation. (ii) Government of Kerala. (2024) Economic Review 2023, Vol.2, State Planning Board

Field studies reveal that many cooperatives in Kerala are straying from their foundational principles, becoming increasingly intertwined with bureaucratic systems (Jose 2012; Veerakumaran & Vinaikumar 2014; Nair & Misha 2024, Jose 2001). This entanglement has limited their autonomy, posing a challenge to the cooperative movement's effectiveness in addressing the socio-economic needs of its members. As the Fourth Industrial Revolution— characterized by the integration of digital technologies, automation, and artificial intelligence— reshapes industries, Kerala's cooperatives must adapt to remain competitive. This includes adopting digital platforms for financial transactions, market access, and supply chain management. At the same time, the cooperative model's focus on local control and community benefit offers a counter-narrative to the disruptive

potential of this revolution, such as job displacement and rising inequality. The cooperative movement in Kerala must therefore find ways to integrate new technologies while preserving its core values. This background of Kerala's cooperative movement sets the stage for addressing the research problem outlined below.

3. Research Problem Statement

The onset of the Fourth Industrial Revolution, characterized by rapid technological advancements such as automation, artificial intelligence, and digital platforms, presents both significant challenges and transformative opportunities for Kerala's cooperative sector. With over 17,000 registered cooperatives across agriculture, banking, fisheries, and consumer goods, these institutions have historically been central to fostering social equity, financial inclusion, and rural development in the state. However, as Kerala's economy becomes more integrated with global markets and the pressures of modernization intensify, the ability of cooperatives to adapt to these technological changes and continue contributing to sustainable economic growth is increasingly in question.

This study critically examines the potential of Kerala's cooperatives to navigate the complexities of this industrial transformation, particularly in leveraging their community-centric and democratic structures to drive inclusive growth. At the same time, the research explores the risks posed by these technological shifts, including the potential erosion of cooperative values such as democratic governance and local control. By situating these cooperatives within the broader political economy of Kerala, this research aims to assess how they can continue to play a strategic role in shaping the state's economic future, ensuring that the benefits of technological advancement are equitably distributed across society, without compromising their foundational principles.

4. Research Objective

To critically analyze the historical role of Kerala's cooperatives in driving economic development, assess the challenges and opportunities they face in adapting to the Fourth Industrial Revolution, and explore how these cooperatives can leverage their community-centric model, governance structures, and policy support to foster sustainable and inclusive growth. The study will also examine how Kerala's cooperatives can balance the demands of modernization with their core values of social equity and democratic governance in an increasingly globalized economy.

5. Research Questions

As we move further into the era of the Fourth Industrial Revolution, critical questions arise regarding the role of cooperatives in this new economic paradigm:

(i) How have Kerala's cooperatives historically contributed to economic development, and what lessons from their past can guide their adaptation to the Fourth Industrial Revolution?
(ii) What are the main challenges and opportunities for Kerala's cooperatives in embracing technological advancements and navigating globalization within the evolving political economy?
(iii) How can Kerala's cooperatives leverage their community-centric model to foster sustainable and inclusive economic growth while maintaining a balance between modernization and social equity?
(iv) How do governance structures, financial mechanisms, and state policies impact the ability of Kerala's cooperatives to adapt to the economic and industrial transformations of the Fourth Industrial Revolution?

6. Thesis Statement

This study argues that while Kerala's cooperatives have historically contributed to economic resilience and social equity, their current governance structures have deteriorated, deviating from core ICA principles and suffering from declining member participation. Increasingly entangled in the state's bureaucracy, the cooperative movement has been weakened by corruption, inefficiency, and the erosion of democratic processes, largely due to the politico-bureaucratic nexus. As youth disengagement grows and governance issues persist, the capacity of cooperatives to adapt to the demands of the Fourth Industrial Revolution and drive sustainable, inclusive growth is significantly compromised. The future success of Kerala's cooperatives depends on urgent governance reforms, renewed member engagement, and a reinvigorated commitment to cooperative principles.

7. Methodology

This study employs a mixed-methods approach, integrating qualitative and quantitative research techniques to comprehensively analyze the role of cooperatives in Kerala within the context of the Fourth Industrial Revolution. This methodology captures the multifaceted nature of cooperatives, including their philosophical foundations, governance structures, and socio-economic impacts.

The research begins with a comprehensive literature review on the political economy of cooperatives, with a specific focus on Kerala and the implications of the Fourth Industrial Revolution. This review identifies key gaps and establishes the theoretical foundation for the study. A conceptual framework is developed, incorporating critical concepts from political economy, cooperative governance, and community-centric development, with an emphasis on sustainable development and industrial transformation.

To gather primary data, a purposive sampling method is employed to select case studies from diverse cooperative sectors in Kerala, including agriculture, fisheries, and banking. Semi- structured interviews with cooperative leaders, members, and policymakers are conducted, alongside surveys to capture member engagement and participationii. Document analysis (e.g., policy documents, cooperative records) and field observations are used to further triangulate data.

Quantitative data collection includes analyzing financial performance metrics, membership statistics, and cooperative participation rates. These are integrated with the qualitative findings to provide a comprehensive view of the cooperatives' performance and challenges. Findings from the case studies are compared and synthesized to identify patterns, challenges, and best practices. The final analysis draws broader conclusions about the role of cooperatives in Kerala's political economy and their potential to drive sustainable growth in the face of technological transformation. The study concludes with policy recommendations aimed at enhancing the resilience and effectiveness of Kerala's cooperatives in the context of the Fourth Industrial Revolution.

8. Literature Review:

The Historical Trajectory of the Cooperative Philosophy

The first phase involved a comprehensive literature review to establish the theoretical foundation of the study. Key sources included academic articles, government reports, and publications related to political economy, cooperative development, and technological adaptation. This review helped identify gaps in existing research and informed the conceptual framework used to analyze the data. The literature reviewed provides a comprehensive understanding of the cooperative movement's principles, challenges, and contributions in various contexts.

Cooperatives emerged as an organizational innovation in Europe during the mid-19th century, specifically to counteract the exploitative nature of capitalism that was gaining ground as an economic system during the Industrial Revolution. The first cooperative society was established in 1844 in Rochdale, England, by mill workers who sought to procure consumer goods through a store that adhered to cooperative principles (ICA, 1937), as outlined in Table 1. This Rochdale Society laid the foundation for modern cooperatives, and its principles were later reformulated by the ICA to align with the evolving global environment. Cooperatives play a crucial role in addressing economic challenges, particularly in the context of market and government failures. The Rochdale Pioneers, who initiated the first Cooperative store, recognized this potential. They saw Cooperatives as a solution to the failures of both the public and private sectors, which left workers unable to obtain their daily necessities. The unique strength of Cooperatives lies in their ability to integrate economic, social, and environmental values, leading to positive outcomes not only in terms of income but also in community development and member well-being. This integration is achieved through a democratic structure that emphasizes participation, inclusion, and collective management (assimilated from various publications on cooperatives especially writings by ICA, MacPherson, Birchall etc.)

Cooperatives have since become a vital organizational form for economically vulnerable groups, allowing them to pool their resources for the collective benefit of their communities. In 1995, the ICA adopted a revised Statement on the Cooperative Identity, which includes the definition of a cooperative, its core values, and the seven cooperative principles (see Table 2). These principles form a cohesive whole, with each one reinforcing the others. As MacPherson, who developed the latest set of principles, explains they are intricately connected, and neglecting even one weakens the impact of all. Co-operatives should not be assessed solely on a single principle; instead, their success should be measured by how effectively they embody the principles as a unified set (MacPherson, 1995b, p. 13).

Table No. 2: Cooperative Principles: A Comparison of Principles of Rochdale Pioneers Vs. ICA

Sl No	**Cooperative principles by Rochdale Pioneers (1844)**	**Cooperative principles by ICA (1995)**
i	Open Membership	Voluntary and Open Membership
ii	Democratic Control	Democratic Member Control
iii	Dividend on Purchase	Member Economic Participation
iv	Limited Interest on Capital	Autonomy and Independence
v	Political and Religious Neutrality	Education, Training and Information
vi	Cash Trading	Co-operation among Cooperatives
vii	Promotion of Education.	Concern for Community

Source: Computed and compiled from different sources

The principle of 'Political and Religious Neutrality' of Rochdale Pioneers is no longer a principle of Cooperative formation as per the ICA statement. According to ICA, a Cooperative is "an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically controlled enterprise". It is to be noted that the "Cooperatives are based on the values of self-help, self-responsibility, democracy, equality, equity and solidarity'' and "Cooperative members believe in the ethical values of honesty, openness, social responsibility and caring for others" (ICA, 2015).

The first four ICA principles are the most important principles that make a Cooperative organization distinct from other forms of business organization. The last three principles underline the

Cooperative's role as a development organisation by 'democratising development' through strengthening its commitment to serve the community where it exists. As observed by Bouchard the dual nature of the cooperative is reflected in the shared identity of members as both owners and users of the cooperative. Through the ownership linkage (economic participation and voting rights), the members jointly (through their association) own the cooperative. The usage linkage means that the cooperatives' activities serve members' needs and aspirations and that members can make use of these activities (Bouchard 2020). Cooperatives are fundamentally value-driven organizations that prioritize the overall well-being of people, in contrast to the income-centric growth pursued in a competitive, capitalistic environment. In principle, cooperatives stand in direct opposition to the operations of firms within a capitalist economy. However, the practical application of cooperative principles often involves navigating a complex landscape of priorities and compromises.

As illustrated in Table 3, a cooperative economic framework involves multiple stakeholders who collaborate towards a shared purpose or benefit. Among these stakeholders, governments play a crucial role, particularly in fiscal and legal matters, and in overseeing the operation of cooperatives within the broader economy. The success and development of the cooperative movement in any country are shaped by a complex interplay of factors. These include the economic and political systems, state and government legislation, and social and economic policies, as well as external influences such as the international economy and technological advancements. Birchall's (2011) work emphasizes the importance of membership and democratic governance in cooperatives, aligning with the foundational principles outlined by the ICA (2024). Ostrom's (2015) work brings out the evolution of institutions for collective action. Attwood and Baviskar's research (1987) investigates the factors influencing the success and failure of sugar cooperatives in India, highlighting the critical role of institutional support.

Table No. 3: Various Cooperative Stakeholders and Their Rational Concerns

Publics	Area of Concern
Farmer/Members	(i) Good price, (ii) Equity price, (iii) Reduction of risks, (iv) Access to the market, (v) Continuity of farming
Customers	(i) Food safety, (ii) Wholesomeness, (iii) Product price, (iv) Marketing efficiency
Employees	(i) Financial benefits, (ii) Recognition/Pride, (iii) Working environment
Suppliers	(i) Price, (ii) Stability, (iii) Continuity
Government (state/local)	(i) Taxes, (ii) Prevention of oversupply, (iii) Law enforcement, (iv) Competition (i.e., no subsidies)
Society	(i) Sustainable growth, (ii) Preventing the outflow of resources, (iii) Education and services, (iv) Civil rights, (v) Pollution abatement, (vi) Employment provision
Landowners	(i) Good rent on land, (ii) Appreciation of land value

Source: Van Bekkum O.F and Van Dijk G. (Eds.) (1997) – Agricultural Cooperatives in the European Union, Trends and Issues on the Eve of the 21st Century, Van Gorcum: The Netherlands.

Reports from the Government of India (2024) and the Government of Kerala highlight the status, policies, and vision for cooperatives in India and Kerala, respectively, underscoring the role of cooperatives in socio-economic development. Govil et al. (2020) explore the evolution and impact of farmer-producer companies, illustrating the cooperative model's potential in agricultural sectors. Jose and Chathukulam (2022) analyze the implications of India's new cooperative ministry, providing

insights into policy directions. Singh and Pundir (2000) focus on cooperatives' role in rural development, while Thomas and Williams (2017) narrate the success story of a construction workers' cooperative in India. Additionally, cultural values, demographic structures, living conditions, and the activities of other organizations, people's movements, and trade unions also play significant roles. Together, these factors determine the ability of cooperatives to thrive and fulfil their mission (Laidlaw, 1987; Birchall, 2004; Kumar, Wankhede, & Gena, 2015; Mooney, 2004; Hyman, 2001). Collectively, these sources offer a rich contextual background and critical analysis relevant to understanding the political economy of cooperatives in Kerala amidst the evolving industrial landscape.

The history of the world's poorest countries reveals a journey from colonialism to Cold War realignments, where development aid became a tool for superpowers to influence these nations. In this context, cooperatives were often misused and viewed as a means to transition toward either capitalist or socialist economies, depending on which superpower was being appeased (Birchall, 2004). However, cooperatives are not merely transitional forms but are unique, people-centred businesses that enable individuals to collectively meet their needs by pooling resources. Despite their potential, it's crucial not to idealize cooperatives or any organizational type as universally effective. Different organizational structures serve different purposes based on who controls them, how assets are managed, and how profits are distributed. Cooperatives, with their focus on collective strength, are particularly advantageous in helping poor communities through economic activities tailored to their specific needs.

Conflicting interests can arise within a cooperative system. For instance, suppliers in a farmer- owned cooperative seek to maximize prices, while consumers in a consumer cooperative aim for the lowest possible prices. Similarly, workers in a worker cooperative strive to maximize their wages or salaries. These differing priorities can create tension within the cooperative structure. Ranis (2016) argues that worker cooperatives offer a democratic alternative to neoliberal capitalism, empowering workers through ownership and decision-making. In his book *Cooperatives Confront Capitalism: Challenging the Neoliberal Economy*, Ranis emphasizes that cooperatives challenge the exploitative nature of capitalist enterprises by promoting social justice, equality, and economic democracy. He suggests that cooperatives are key to addressing the inequalities perpetuated by neoliberal economic policies.

As observed by Marie & Yair (2005) a key challenge for cooperatives is balancing their social and economic goals while operating in a competitive environment that values individualism and profit. This tension creates a paradox, where cooperatives strive for solidarity and reciprocity, yet must navigate a culture that often views cooperation as a hindrance to individual freedom. To survive and maintain their distinct values, cooperatives need to adopt a new approach that integrates their social mission with modern economic realities. To perform effectively, a cooperative must be organized around a homogeneous interest that aligns with the goals of its members (See Table 3).

The essence of a Cooperative can be encapsulated by the three "Cs": cooperation, community spirit, and collective action (Dash, 2013). These organizations represent a blend of capitalism, with its focus on income growth, entrepreneurship, and enterprise development, and democracy, with its emphasis on participation, ownership, and control. This "arranged marriage" between capitalism and democracy enables Cooperatives to transform the economic lives of their members by prioritizing values beyond mere profit and competition.

The Cooperative Approach: A Distinct Model of Economic and Social Integration

The Cooperative model differs fundamentally from that of a typical capitalistic firm, particularly in

its treatment of labour. In traditional capitalist firms, labour is often viewed as toil, where employees work primarily for wages. In contrast, Cooperatives treat labour as action, where member-workers actively engage in the organization, contributing to both its economic and social objectives. Cooperatives uniquely combine two key dimensions, as highlighted by Stefano Zamagni (2010):

(i) *Associationism:* This dimension emphasizes the voluntary coming together of individuals to achieve goals that are unattainable individually.

(ii) *Entrepreneurship:* This aspect focuses on the creation of an enterprise, a stable organization that directs productive activities towards the market.

By integrating these two dimensions, Cooperatives balance the social aspect of producing positive externalities for the community with the economic necessity of operating successfully within the market. Unlike the standard capitalist model, which prioritizes the accumulation and concentration of wealth among owners and investors, *Cooperative economics* is centred on the fair distribution of wealth among all producers and consumers. This paradigm shift underscores the potential of Cooperatives as a means for people, especially the poor, to help themselves. Cooperatives embody the principle of development for the people and by the people, making them a powerful tool for equitable and sustainable economic growth. Both theory and practice demonstrate that Cooperatives are uniquely positioned as the only economic institutions capable of organizing the unorganized. They not only enable these individuals to participate in the production process but also ensure that they benefit from it. Through this inclusive approach, Cooperatives play a vital role in fostering equitable growth and empowering those who are typically marginalized in traditional economic systems.

Johnston Birchall (2017) made a significant contribution to the theory of cooperative governance by emphasizing the importance of a well-designed governance structure centred around three key elements: member involvement, representation, and expertise. He argued that member engagement is crucial for reinforcing psychological ownership, particularly in large consumer cooperatives where governance participation may be limited to voting. Birchall also recognized the challenges of ensuring effective representation in cooperatives with diverse member interests and types, and he highlighted the importance of appointing independent directors to fill expertise gaps, especially in consumer cooperatives where members may lack familiarity with market dynamics and strategic decision-making. In "Neither Public Nor Private: The Co-operative Third Way," Johnston Birchall (1996) explores how we should conceptualize the co-operative sector and its position relative to other social and economic sectors. He raises important questions about whether the significance of cooperatives varies across countries and over time, or if there is a consistent essence grounded in cooperative principles. Birchall examines two primary approaches to these questions: one rooted in political economy and the other in social philosophy. He further discusses the relevance of different models, including the social economy model, the third sector model, and the people- centred business model, offering a comprehensive analysis of where cooperatives fit within the broader societal framework.

'New Cooperativism' refers to a resurgence and reimagining of cooperative principles and practices that have emerged in response to the failures of neoliberal capitalism, particularly in the late 20th and early 21st centuries. This movement redefines traditional cooperatives by emphasizing values like sustainability, social justice, and community empowerment, often in contrast to the profit- driven motives of traditional capitalist enterprises. The concept of 'New Cooperativism' is rooted in the recognition that traditional cooperatives, while valuable, often operated within the confines of capitalist structures, focusing more on economic survival than on broader social change (Vieta, 2010). The new wave of cooperatives, however, seeks to address systemic inequalities, environmental

degradation, and the erosion of community through innovative, democratic, and inclusive practices. This includes worker cooperatives, community-owned enterprises, and digital cooperatives that leverage technology to create more equitable and participatory economic models (Parker et al., 2014).

Baviskar and Attwood (1996), among the pioneers in this area of research, emphasized that the performance of Cooperatives can only be fully understood within the specific regional political and social context. They observed that regions characterized by a broad middle stratum of peasant proprietors, numerically large middle-status castes, commercialization, and relatively greater autonomy from the state are more likely to see successful Cooperative movements. Rath (2016) advocated for institutional changes to promote Cooperatives, suggesting that membership should be limited to those who actively use the Cooperative for its intended purpose. He also proposed that voting rights within Cooperatives should be proportional to each member's share in the total patronage, aligning with the principle of "member economic participation."

The Shivajirao G. Patil Committee (Government of India, 2009) identified governance as a significant factor contributing to the poor performance of Cooperatives in India. The committee argued that the root cause of governance issues lies in the legal framework governing Cooperatives. It recommended constitutional amendments to ensure that state Cooperative laws support the autonomous functioning of these institutions. Such autonomy is crucial not only for helping people survive economically but also for indirectly influencing market behaviour. The Vaidyanathan Committee (NABARD, 2005), which examined Cooperative credit, similarly concluded that poor management and governance were the primary reasons for the financial losses faced by Cooperative societies and banks. The committee warned that without improvements in these areas, any efforts at capitalization would be ineffective as the fundamental functioning of Cooperatives would remain unchanged. A study by the National Council of Applied Economic Research (NCAER) on Cooperative agro-processing and the identification of institutional financial gaps highlighted numerous policy hurdles facing the Cooperative model in India. One major issue identified was the administration of Cooperatives, traditionally managed by state governments, which introduces political complexities. The establishment of a Union Ministry for Cooperatives has rekindled the national debate on collaborative federalism, as noted by Bandyopadhyay (2021).

Many researchers have consistently underscored the governance challenges faced by Cooperatives in India, highlighting the need for reforms to enhance their effectiveness and sustainability. A study by Virendra Kumar, (2015) concluded that Cooperatives are crucial in supporting small and marginal farmers, particularly in developing countries where agriculture is key to economic growth. By uniting farmers to address common needs, cooperatives like IFFCO, KRIBHCO, and AMUL have significantly improved crop productivity, income, and sustainability. These organizations not only enhance agricultural efficiency but also promote ecological resilience through initiatives like agroforestry, benefiting both farmers and the broader community.

Technological and Economic Changes Associated with the next Industrial Revolution.

The transformative impacts of each industrial revolution, from Industry 1.0 to Industry 4.0, on economic structures and labour markets have been significant. Each industrial revolution has brought about profound changes in economic structures and labour markets. The first industrial revolution introduced mechanization, the second brought mass production, and the third digitalized information. The fourth, or Industry 4.0, is characterized by the fusion of technologies that blur the lines between physical, digital, and biological systems. This revolution is expected to transform industries, leading to automation and data exchange in manufacturing technologies, impacting everything from production to services.

Cooperatives, traditionally seen as a model of collective action and social capital, face unique challenges in the context of Industry 4.0. While these organizations have historically thrived on community participation and democratic decision-making, the rapid pace of technological change necessitates a reevaluation of their operational models. The principles of cooperation—such as voluntary membership, economic participation, and concern for the community—must be integrated with the demands of technological innovation to remain relevant. If Owen were alive today, he would likely extend his influential ideas on the relationship between wants, needs, and social progress to address the current climate crisis. Owen's works (Owen, 1813-16) and the communal experiments of the Owenite movement, dating back to the 1820s, clearly reflect an early recognition of the value of reducing unnecessary consumption in favour of increasing free time and fostering creative pursuits.

The literature on current trends and challenges in the cooperative sector, especially in the face of technological and economic changes associated with the next industrial revolution gives a broad picture of the challenges that the cooperative sector faces. As per the ICA World Cooperative Monitor 2022, large cooperatives that invested in digitalization face prominent challenges due to rapid technological shifts. These organizations need to address the growing demands for digital participation while maintaining democratic control. The balance between embracing technology and preserving traditional cooperative values is a significant concern. In the rapid transformation of the economy, digitalization is assuming a key strategic function in enterprises. It is pervasive in all areas of activity in large, small, and micro enterprises and affects the entire value chain cycle of products and services ICA (2022).

The study by Linfeng et.al (2024) in China examined the digital transformation of farmer cooperatives. They opined that it is crucial for advancing rural digital strategies, but it faces challenges due to funding and scale constraints, necessitating both government and market involvement. This study uses a tripartite game model to analyze the roles of farmer cooperatives, consumers, and the government, identifying key parameters like digital subsidy coefficients and consumer preferences that influence successful digital transformation. In the short term, policy-driven initiatives are critical, while long-term success depends on market-driven approaches.

A study conducted in Indonesia examined the competitiveness of cooperatives in the fourth industrial revolution (Industry 4.0) which is defined by automation, data exchange, and advanced digital technologies. Cooperatives, particularly in community economic organizations, face challenges in keeping pace with rapid technological change. Cooperatives' low competitiveness, especially in regions like West Java, Indonesia, highlights the need for adapting to technological advancements and improving sustainability. The sector needs to adopt more digital and automation-based approaches to remain competitive (Wahyuningtyas, et.al. 2023). Research on coffee farmer cooperatives in Indonesia reveals how digital transformation, driven by the fourth industrial revolution, improves the sustainability of these cooperatives. However, limited technological resources and the need for upskilling members pose major obstacles.
(Wardhiani, et.al 2023).

The study conducted by de Peuter et.al (2022) in Canada the UK and the USA examined the new forms of 'cooperativism' that have emerged in the creative and tech sectors. The study highlights four key implications for 'cooperativism' in the cultural and tech sectors. First, research must be grounded in robust evidence of co-operatives' material conditions, such as pay, benefits, and worker's voice, to effectively advocate for co-operatives as a strategy for economic and social justice. Second, the informality in many co-operatives, particularly in creative industries, poses risks to their economic sustainability, highlighting the need for better business practices and reflection on cooperative principles. Third, the rapid growth of co-operatives in creative industries presents opportunities to

promote the cooperative model as an alternative to sole proprietorship, especially given the high satisfaction rates among co-operative workers. Finally, the mixed findings on pay and benefits reflect the broader precarity of work in these sectors, suggesting that co-operatives must be linked with broader movements for social protection and workers' rights, with union co-operatives playing a key role in this effort. However, challenges such as maintaining organizational structures that support democratic participation, while competing in fast-changing industries, remain a barrier. There are opportunities in these sectors, but more work is needed to ensure cooperative principles can thrive alongside technological innovation.

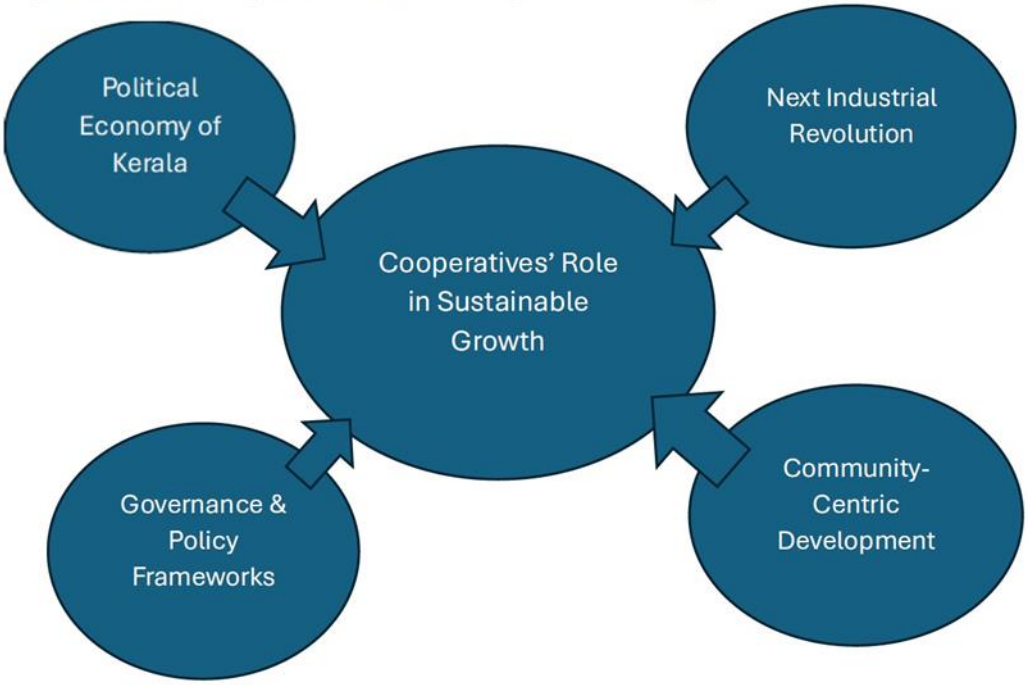
The paper by Tripathy et.al (2021) opines that the next industrial revolution, Industry 4.0, offers both significant challenges and opportunities for cooperatives, traditionally grounded in collective action and democratic values. While technological advancements like Big Data, IoT, and automation can enhance operational efficiency and sustainability, cooperatives often struggle with resource constraints, limited technological infrastructure, and the need to balance innovation with member participation. Successful digital transformation in cooperatives depends heavily on cultivating technical skills, fostering member engagement, and developing robust IT infrastructures. Ultimately, cooperatives that can integrate Industry 4.0 technologies while preserving their cooperative principles stand to benefit from increased competitiveness and long- term sustainability. The study by Saba (2023) highlights how Industry 4.0 can help cooperatives improve operational efficiency and sustainability. Despite cooperatives' historical challenges with adopting technology due to limited funding and infrastructure, these advancements offer solutions for sustainable business practices. However, the successful implementation of Industry 4.0 in cooperatives requires active member participation, technical knowledge, and collaboration.

In sum, while Industry 4.0 introduces significant technological and economic shifts, the cooperative sector’s ability to integrate technological innovation with cooperative values of community and equity will be critical in navigating these changes, especially in regions like Kerala with strong traditions of cooperative governance. Studies from regions like China, Indonesia, and North America reveal that cooperatives must adapt to rapid technological shifts while maintaining their core values.

9. Conceptual Framework of the Study

Based on insights gained from the literature review, a conceptual framework has been developed to guide the analysis. This framework integrates key concepts from political economy, cooperative governance, sustainable development, and industrial transformation. It will serve as a lens through which the role of cooperatives in Kerala can be critically examined, focusing on the interaction between cooperatives and broader economic forces such as globalization and technological change. The framework will address the dual objectives of cooperatives: promoting social equity and achieving economic efficiency, while also considering the significant impact of state policies and regulatory environments on the functioning of cooperatives.

Figure-1: The Conceptual Framework Diagram of the Study



However, the framework also acknowledges the challenges that Kerala's cooperatives face, particularly the erosion of governance structures, the weakening of member participation, and the pervasive influence of the politico-bureaucratic nexus. These factors have led to a disconnection between cooperatives and their foundational principles, resulting in a sector that struggles to remain relevant to the youth and is increasingly seen as an appendage to the state's bureaucracy. The conceptual framework will therefore not only assess the potential of cooperatives to act as agents of sustainable development in a rapidly changing industrial landscape but also critically evaluate the structural and governance reforms necessary to revitalize the cooperative movement in Kerala. This structured approach ensures that all relevant dimensions of the research questions are addressed, providing a comprehensive analysis of the cooperative conundrum in Kerala.

10. Empirical Analysis: Cooperatives in Kerala Today

Since 1990-91, India has embraced a liberalized, capitalistic market economy. However, the current central government's decision to prioritize cooperatives by establishing a dedicated ministry must be viewed considering the potential of cooperatives to serve as a countervailing force, protecting the interests of the disadvantaged sections of society (Jose & Chathukulam 2022). Data on inequality in India, such as the Gini index, reveals that income disparity has worsened since the country embarked on a private enterprise-driven growth path. While the rich have become richer, the conditions for the poor have not improved and, in some cases, have deteriorated— particularly during the current pandemic crisis (World Inequality Lab, 2022).

The political economy of cooperatives in Kerala can be understood through the lens of power relations, resource distribution, and economic policies that have shaped their development. Cooperatives in Kerala emerged as a response to the failures of both the market and the state to address the needs of marginalized communities. By organizing themselves into cooperatives, these communities were able to exert collective control over resources and gain a degree of economic autonomy. The political economy of cooperatives in Kerala can be better understood by examining

how these institutions are managed and governed, considering both political and economic factors. The literature review provided insights from key studies highlighting critical issues that influence policymaking for the development of cooperatives in Kerala and India.

The authors conducted comprehensive field research across various cooperative sectors in Kerala, involving surveys and interviews with key stakeholders, including cooperative members, leaders, policymakers, and experts. Kerala's economy, characterized by high human development indicators and significant remittance inflows, continues to rely on cooperatives in agriculture, dairy, fisheries, and finance. The field-level investigation intended to answer our research questions was also motivated by the following three primary factors: (i) We observed a significant decline in the percentage of functioning cooperative societies in Kerala over the past 18 years, as illustrated in Table 4. The percentage dropped from 85.51% in 2005 to 75.57% in 2023. (ii) There is widespread occurrence of irregularities and fraudulent activities across various sectors of cooperative operations. (iii) Despite the prominence of cooperative societies in the agricultural sector, this sector in Kerala continues to underperform. In Kerala, as indicated in Table 1, nearly 62% of marketing and processing cooperatives are either dormant or under liquidation, alongside approximately 34% of miscellaneous societies (their number is huge-6928, see Table 1) falling into the same category. This poses a significant challenge; particularly given the severe crisis in agricultural marketing that Kerala is currently facing. The inability of cooperatives to effectively address the needs of farmers underscores a critical failure in the cooperative system's role in supporting agricultural stakeholders. We observed that deep-rooted structural, managerial, and demographic challenges threaten the long-term sustainability of the cooperative movement. These challenges must be addressed to revitalize cooperatives in an increasingly dynamic socio- economic environment as we explain in the following sections.

Table 4 No. of Societies Working CO-OPERATIVE SOCIETIES (**Under RCS**) as of 1st April 2005, and 31st March 2023

Sl No	Type of Societies	1st April, 2005			31st March 2023		
		Total	Of which Working	Working Percentage	Total	Of which Working	Working Percentage
1	Number of Societies	12612	10280	***81.51***	16255	12284	***75.57***

Source: (i) Government of Kerala, (2023).NUMBER STATEMENT OF TYPE WISE CO-OPERATIVE SOCIETIES, Department of Co-operation. (ii) Government of Kerala. (2010) STATISTICAL ABSTRACT 2005-06 HANDBOOK, STATISTICS WING, Office of the Registrar of Co-operative Societies, Kerala

Politicization of Cooperatives

A major issue facing Kerala's cooperatives is the politicization of their governance structures. Elections to cooperative boards are frequently contested along political lines, with members affiliated with political parties holding key positions. This politicization undermines the cooperative principles of democratic member control and economic participationiii. Political interests often overshadow the cooperative ethos, turning these institutions into stepping stones for political ambitions rather than serving the economic interests of their members.

According to field data, political leaders often use cooperatives as platforms to advance their careers, with positions in cooperatives leading to more prestigious roles in the state legislative assembly or Parliament. Additionally, political interference has led to selective membership practices, where individuals opposed to the ruling political faction are excludediv. This practice violates the inclusive

nature of cooperatives and dilutes their economic and social impact.

Kerala's cooperative development faces a significant issue due to the loss of *local control* in decision-making, caused by the interference of centralized political parties. Despite a framework for democratic, decentralized planning, local leaders, especially in Cooperatives & Gram Panchayats, lack the authority to address community-specific issues. Centralized political parties impose a top-down approach, undermining grassroots participation and cooperative democracy. This paradox restricts the effectiveness of local governance (local control) in cooperatives as decisions are dictated from above rather than emerging from the needs of the local community.

Strengthening regulatory frameworks to limit political involvement in cooperative elections could restore the democratic essence of cooperatives. This might include setting clear guidelines for the selection of board members based on professional qualifications rather than political affiliations. Encouraging active participation & local control and oversight by members can create accountability, reducing the influence of external political forces.

Church Politics and Cooperative Leadership

In regions such as Travancore and Idukki, the involvement of the Roman Catholic Church in cooperative leadership has emerged as a substitute for weakened political leadership. The Church has played a pivotal role in organizing Farmer Producer Companies (FPCs) and Farmer Producer Organizations (FPOs), filling the leadership vacuum left by internal divisions within political parties such as the Kerala Congress.

While the Church's leadership (relatively free from political interference) has brought some stability, especially in addressing agricultural issues such as declining cash crop prices, the leadership often lacks the professional management expertise required for long-term growth[v]. Young priests and bishops have increasingly taken leadership roles, but they are not equipped with the skills to manage complex agricultural cooperatives efficiently.

Cooperative boards, even those led by religious or community organizations, need to recruit professional managers with expertise in finance, marketing, and agricultural production. Offering targeted training and capacity-building programs for cooperative leaders could bridge the gap between social leadership and professional management.

Lack of Professional Management

One of the most critical issues observed in Kerala's cooperatives is the absence of professional management. Many cooperatives, despite handling significant financial transactions, do not adhere to basic financial standards. For example, cooperatives managing large sums of credit frequently overlook non-performing assets (NPAs) and cost-of-fund calculations, leading to financial instability. Data from field research indicates that cooperatives with politically appointed leaders or individuals lacking financial expertise often suffer from mismanagement[vi]. In some cases, mismanagement has led to high rates of NPAs and unsustainable operational costs. For instance, cooperatives involved in the chitti (traditional savings and credit) schemes struggle to maintain profitability without adopting more modern financial practices[vii]. The recent Karuvannur Service Co-operative Bank scam, along with several similar incidents in the state, highlights the professional inefficiency and serves as a clear example of the politico-bureaucratic nexus undermining the cooperative movement in Kerala (The Hindu 2024).

Implementing strict financial audit procedures to ensure that cooperatives adhere to modern financial management practices can reduce the risks of financial mismanagement. Encouraging cooperatives

to hire professionally trained managers with expertise in finance, economics, and agricultural markets would improve operational efficiency and financial sustainability.

Declining Member Participation and Loss of Public Trust in Cooperatives

A significant decline in member participation in cooperative management has been observed. Despite having large memberships, only a small fraction of members attend annual general meetings or engage in decision-making processes. This is particularly evident in agricultural cooperatives, where many members are inactive or joined merely for social status.

Field data show that the lack of member engagement leads to decision-making being concentrated in the hands of a few individuals, undermining the democratic foundation of cooperatives. For example, in some cooperatives with over 10,000 members, fewer than 100 members attended the last annual meeting, signalling disengagement and a potential loss of relevance for the cooperative movement.

Another significant observation from the field pertains to the growing distrust in Kerala's cooperative sector, particularly in the aftermath of the Karuvanur scam. This scandal has led to a widespread loss of confidence in the cooperative movement, with many individuals withdrawing their deposits or awaiting maturity to do so. Our visits to various cooperatives revealed a consistent pattern of deposit withdrawals, signalling a broader decline in public trust. This erosion of trust threatens to tarnish the image of cooperatives in Kerala for an extended period. Moreover, it is likely to deter youth participation, as the sector is increasingly viewed as politically compromised and poorly managed. The loss of trust in cooperatives represents a critical challenge for the future of Kerala's cooperative movement.

Introducing incentives for members to participate in cooperative activities, such as financial rewards for attending meetings or contributing ideas, could revive engagement. Cooperatives could adopt digital platforms to allow members to vote, access cooperative information, and participate in discussions remotely, thus increasing accessibility and engagement. It is recommended that urgent steps be taken to rebuild trust in Kerala's cooperative sector by ensuring greater transparency, reducing political interference, and improving management practices to restore public confidence and attract future generations.

Demographic Challenges: Youth Absence and Aging Population

The ageing demographic of Kerala's agricultural workforce is a critical issue for cooperatives. Field observations show that youth participation is minimal, especially in Farmer Producer Organizations (FPOs), which are promoted by Cooperatives) and weekly markets, which are largely dominated by individuals over the age of 50. This reflects broader socio-economic trends, where younger generations migrate abroad for education and employment, leaving agriculture to older individuals. The absence of youth from agriculture has reduced the capacity for innovation and modernization in cooperatives. In many cases, FPOs are promoted with little grassroots demand from the farming community. As a result, while FPOs meet the formal requirement of having at least 300 members, they often fail to engage in actual production activities, reducing their economic and social impactviii. Additionally, with an ageing population, cooperatives risk becoming obsolete if they cannot attract younger membersix.

Introducing cooperative entrepreneurship programs targeted at younger generations and offering them leadership opportunities and financial incentives could help attract younger participants to agriculture and cooperatives. By embracing digital platforms and innovative technologies in agricultural production and marketing, cooperatives could appeal to the tech-savvy younger generation.

Regulatory Issues

While Kerala's regulatory environment has traditionally supported cooperatives, existing laws are not equipped to address modern challenges such as Industry 4.0. Current regulations limit cooperatives' ability to innovate, partner with private sector companies, or adopt new business models that could enhance their competitiveness in the digital era. The inability of cooperatives to form partnerships with private companies or access innovative technologies has limited their capacity to diversify operations and stay competitive. Outdated laws restrict their ability to expand into new markets or adopt efficient financial models.

Introducing policy reforms that allow cooperatives to form partnerships with private companies, adopt digital payment systems, and diversify their services is essential. Laws should encourage innovation while upholding the core principles of cooperatives. Providing government incentives for cooperatives to invest in modern technologies and diversify their operations could help them compete with commercial banks and private firms.

Technological Skill Gap

The technological skill gap in Kerala's cooperative workforce poses a major challenge. Many cooperatives, especially in rural areas, lack the skilled workforce needed to implement modern technologies and adapt to Industry 4.0 advancements, such as digital financial platforms, automated processes, and data-driven decision-making. As a result, cooperatives are falling behind in terms of operational efficiency and competitiveness. For instance, many cooperatives have yet to adopt UPI-based payment systems, which are increasingly popular among younger consumersx.

Offering specialized training programs to cooperative workers and leaders on using modern financial tools and technologies would help cooperatives bridge the skill gap. Cooperatives could collaborate with technology companies to develop tailored solutions that meet their specific operational needs, improving efficiency and member services.

Cooperative Entrepreneurship and Lack of Innovation

There is a noticeable lack of cooperative entrepreneurship and innovation in Kerala's cooperative movement. Cooperatives continue to operate in a routine, bureaucratic manner, with little room for innovative ideas or modern business models. Leadership remains largely stagnant, dominated by older generations resistant to change. Cooperatives have failed to adapt to the changing socio-economic landscape, resulting in declining relevance. For example, ventures like *cooperative marts* continue to operate with outdated customer service models and fail to attract younger customers or turn a profit. Cooperatives need to foster a culture of entrepreneurship and innovation, where new leaders with dynamic ideas can take charge. Encouraging younger leaders and members to participate in decision-making could revitalize cooperatives. Expanding cooperative services beyond traditional areas like credit and savings to include modern financial products, agri-business services, and digital banking could help cooperatives compete in a fast- changing market. A pertinent observation by the authors on '*Cooperatives and Social Innovation'* reminds us that social innovations emerge when the state and market in developing countries find it difficult to solve problems such as poverty, hunger, ill health, poor education systems, inadequate drinking water and poor sanitation (Rajasekhar, Manjula & Paranjothi 2020). A significant aspect of cooperative success lies in their ability to innovate across various dimensions. For instance, the performance of farmer collectives can be better understood through an analysis of their innovations, which span membership profiles and roles, governance structures, and member interface and relations. These innovations are crucial in enhancing cooperative efficiency, fostering member engagement, and ensuring sustainable growth in an increasingly competitive and technology-driven landscape (Singh 2023).

The cooperative movement in Kerala is at a critical juncture. Deep-rooted issues such as politicization, lack of professional management, declining member participation, and an ageing demographic threaten its long-term sustainability. To address these challenges, significant reforms are needed—particularly in leadership, professionalization, and modernization. By adopting a more entrepreneurial and technologically driven approach, cooperatives can regain their relevance and continue to serve as vital institutions for Kerala's socio-economic development.

11. Strategies for Navigating the Next Industrial Revolution

To remain competitive and sustainable in the era of Industry 4.0, cooperatives in Kerala must prioritize the adoption of innovative technologies while maintaining their commitment to cooperative principles such as equity, democratic participation, and community benefit. The introduction of digital platforms, artificial intelligence (AI), and blockchain technologies can not only enhance operational efficiency but also empower cooperative members by creating more transparent, inclusive, and profitable systems (Lorella et.al. 2023). Our analysis of the Kerala scenario leads to the following:

(i) Embracing Industry 4.0 Technologies: By leveraging e-commerce platforms, cooperatives can expand their market reach, enabling members—particularly in agriculture and dairy—to sell products directly to consumers without intermediaries. For example, cooperatives can use online platforms to offer subscription-based delivery services for local produce, promoting sustainability and reducing logistical costs (Nyagadza et.al. 2022). Artificial intelligence can revolutionize cooperatives by optimizing resource allocation, predicting market trends, and analyzing financial health. For instance, AI-driven tools could help credit cooperatives better assess loan applicants, improving financial inclusion while minimizing risks related to non-performing assets (NPAs). Similarly, AI can help agricultural cooperatives analyze weather patterns and recommend optimal planting schedules[xi].

Blockchain technology can improve the transparency and accountability of financial transactions in cooperatives. For instance, blockchain can be used in credit cooperatives to create tamper-proof records of member contributions and loan disbursements, reducing the risk of fraud and ensuring that all members have equitable access to resources. It can also enhance supply chain transparency in farmer cooperatives, allowing consumers to trace the origin of their products.

However, the adoption of these technologies must remain aligned with cooperative values. Digital tools should be used to empower members rather than centralize control, and transparency should enhance democratic participation rather than erode it.

(ii) Government Support for the Transition to Industry 4.0: The state government has a critical role to play in facilitating cooperatives' transition to Industry 4.0. The following policy recommendations are designed to enable cooperatives to modernize while maintaining their core principles: The government should introduce targeted subsidies or tax benefits for cooperatives that invest in digital infrastructure and technological upgrades. For example, cooperatives investing in AI-driven financial tools or blockchain-based record-keeping systems could receive financial assistance to offset initial costs. These incentives can be structured in a way that promotes long-term financial independence. Creating specialized skill development programs tailored to the needs of cooperative members is essential. These programs could include training in digital literacy, data analysis, and new agricultural technologies. Collaboration with educational institutions and tech firms can help ensure that

cooperative workers are equipped with the necessary skills to operate advanced technologies.

Kerala's cooperative laws should be revised to promote flexibility and innovation, allowing cooperatives to form partnerships with private enterprises or adopt new business models. For example, updating cooperative laws to allow partnerships with fintech companies could help credit cooperatives offer modern banking services such as digital payments, attracting younger depositors.

(iii) Building Organizational Resilience: In addition to technological adoption, cooperatives must focus on building resilience to navigate socio-economic changes and reduce dependency on a single sector. Organizational resilience can be enhanced through the following strategies: Cooperatives should explore diversifying their operations beyond traditional sectors like agriculture and dairy. For example, cooperatives could enter emerging sectors such as renewable energy, organic farming, or digital financial services. This diversification will help mitigate risks related to market fluctuations in any one sector and create additional revenue streams. In Gujarat, several dairy cooperatives have diversified into solar energy projects, using cooperative-owned land to install solar panels. This initiative not only reduced energy costs but also generated additional revenue through the sale of surplus power to the state grid.

Forming strategic partnerships with private companies, NGOs, and other cooperatives can strengthen the organizational capacity of cooperatives. For instance, partnerships with tech companies can help cooperatives integrate AI-driven tools or blockchain technology into their operations. Collaborating with academic institutions can also help cooperatives access research and development expertise, driving innovation in production processes and marketing strategies. Cooperatives must remain connected to the communities they serve. Regular engagement through participatory decision-making processes ensures that cooperative activities reflect local needs and priorities. For example, setting up community advisory boards composed of diverse stakeholders (e.g., youth, women, and local business leaders) can help cooperatives stay aligned with socio- economic trends and respond more effectively to emerging challenges.

As Kerala's cooperatives face the challenges and opportunities presented by Industry 4.0, a multi- faceted strategy is essential. Technological innovation, supported by government policies and skill development programs, must be combined with efforts to build organizational resilience and strengthen community ties. It is recommended to address the decline in 'functioning' cooperatives, restore public trust, and re-establish local control in cooperative management through targeted reforms; otherwise, the Kerala cooperative movement risks heading towards a collapse. By embracing both modernization and cooperative values, Kerala's cooperatives can secure a sustainable future in an increasingly competitive and digitized world.

12. Conclusion

The cooperative movement in Kerala is facing a significant crisis, rooted in politicization, poor professional management, and diminishing youth participation. These issues have weakened the sector's role in Kerala's economy, turning what was once a dynamic movement into a bureaucratic extension with limited community engagement. To overcome this stagnation, cooperatives must address these challenges by depoliticizing their structures, enhancing managerial professionalism, and re-engaging the younger generation in cooperative activities. It is recommended that measures be taken to restore local control in cooperative decision-making by reducing the influence of

centralized political parties and empowering local leaders to address community-specific issues.

It is recommended to restore public trust in Kerala's cooperatives through enhanced transparency and reduced political interference.

As Kerala and the rest of the world face the onset of Industry 4.0, the cooperative movement must also evolve. Digital transformation offers a pathway to reinvigorating cooperatives, particularly in the agricultural sector, by reducing costs, optimizing resources, and improving production efficiency. Despite the state's historical reliance on cooperatives for socio-economic development, the integration of digital technologies remains slow due to limited funding, inadequate technical expertise, and poor access to digital tools.

To address these barriers, a collaborative approach is essential, involving government support for infrastructure and training, as well as market-driven innovations to empower cooperatives. By embracing digital tools, cooperatives can increase operational efficiency, improve service delivery, and contribute more effectively to Kerala's economic growth. However, this transformation must be pursued without compromising the core values of inclusivity and community participation that are central to the cooperative model. Ultimately, while cooperatives may not be the sole solution to the challenges of economic development, they are an essential part of a more equitable and sustainable future. In an age of increasing uncertainty, their role in empowering individuals and fostering collective action will only grow in importance. If cooperatives did not exist, the demand for such collective institutions would compel us to create them, highlighting their enduring relevance in today's world.

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[i] Please note that there is a lack of cohesive and comprehensive data in the cooperative sector due to fragmented oversight by various government departments. Cooperative societies fall under different regulatory authorities—some are governed by the Registrar of Cooperative Societies (RCS), while others are under the purview of the Department of Industries, the Department of Dairy Development, or the Department of Fisheries.

[ii] It is essential to maintain the confidentiality of the names of the cooperatives used in our case studies, as the information was provided to us under the assurance of discretion. The authors, based on their extensive experience and long-standing engagement with the cooperative sector in Kerala in their professional capacities as academicians, concur with the findings presented in this study.

[iii] The authors of this paper did extensive field work for three months starting from May 3, 2024 to July 30, 2024. The authors visited the selected cooperative institutions of different categories including cooperative banks across Kerala and conducted interviews and focus group discussions (FGDs) with the officials, board members. ordinary members and employees in the selected cooperatives. The names of the selected cooperative institutions and interviewees have been kept anonymous as this is a politically volatile issue. The common factors authors found in all these selected cooperatives include that the hegemony and influence of political parties and their respective local leaders is prevalent in all these selected cooperative entities. The institutions of 'party system' and 'parliamentary party system' which are designed to navigate the working of local governments in Kerala on party line are also seen existing in the working of cooperatives. Those with political backings are only generally placed in key posts in these cooperatives including the president and vice president and members of the governing body. Even if someone want to make independent decisions, they are forced to act according to the dikats given by their local political masters outside the cooperative structure. It was crystal clear that political influence permeates all aspects of cooperatives

sector. Cooperative sector has been also treated as a vote bank and resources, particularly in rural areas. The excessive politicization has led to rampant corruption and fraudulent practices in cooperatives across the state. However, due to political clout, only a selected few are exposed. The authors also come across complaints regarding violent incidents during the time of elections to cooperatives and the elections have been held with police protection in some of the cooperatives visited by the authors. All these indicates that there is a deep democratic deficit within the cooperative sector in the state. There have also been instances where the judicial intervention was needed to conduct election in some of the selected cooperatives in the state.

[iv] The authors during the field visit came across several complaints and incidents which reinforced the fact that that political scrutiny limits membership, especially when individuals from opposition parties seek to join the board of members. Generally, without a 'political scrutiny' no one can obtain a membership to any of the cooperative institutions in Kerala. This was stated by a political leader during our interview.

[v] Church always maintains a conflicting position when it comes to politics. To secure their interest and to stay relevant, the ecclesiastical leadership extend their support to political parties and in matters that are not always necessarily in favor of the Church, they will resent political parties and politicians who stand against them and the Church leaders will even go the extent of manipulating the laity (particularly farmers) in this regard.

[vi] During the interaction with the board members of selected cooperatives, it was noticed that even educated board members are not aware of the financial position of cooperatives. We could see a few board members with graduation and postgraduation from economics and commerce background. It was surprise to comment that their education background has nothing to contribute the performance of the respective cooperatives.

[vii] The lack of professional management makes accounting and systematic governance impossible in many cooperative societies in Kerala. Another disturbing trend noticed during the visit to the cooperatives was that the staff pattern is placed within a hierarchy that is like one we can find in government offices (a bureaucratic framework) or a panchayat office. It gives the impression that the staff pattern in cooperative institutions, particularly in cooperative banks, similar to that of any government office. A person who joins the cooperative as an 'attender' eventually goes on to become the top post, the secretary of the cooperative. We could come across similar situations in many cooperatives and this phenomenon is quite common in cooperative banks.

[viii] One member in a selected FPO, promoted by a Cooperative, opined that two components, namely the farmer and organization, are clearly observable while the third component, production, is noticeably absent.

[ix] Field observations showed that participation of youth in both local agricultural markets and FPO activities is almost nonexistent. The youth prefer white collar jobs and high salaried jobs. In addition, the hardship faced by farmers and agriculturalist in Kerala as a whole also deter younger generation from seeking a career in agriculture and farming.

[ix] All the selected cooperatives are equipped with computers and accessories, yet these resources are often used only for minimal tasks. Many staff members lack the necessary training and skills for effective data management, and even those who are proficient are rarely expected to engage in meaningful computer-based analysis within their institutions. A noticeable pathway of reluctance or resistance to adopting technology exists among both staff and board members, which may stem from

a deep-rooted legacy of 'technophobia' in Kerala's cooperative sector. This hesitancy to embrace technology could reflect a broader cultural pathway, shaped by past experiences and apprehensions about change.

In addition, some staff members fear that technological advancements might threaten their job security, reinforcing their reluctance to adapt. On the other hand, board members often cite a lack of resources as the primary barrier to adopting technology.

However, exceptions exist. For instance, the Sahitya Pravarthaka Cooperative Society (SPCS), a unique cooperative for creative writers in Kerala, primarily focused on publishing and distributing literary works, has taken steps to bridge the technical skill gap. They have admitted that these efforts were driven largely by external market pressures, which have compelled them to modernize to ensure their survival.

This pathway of resistance and adaptation reflects the broader struggle between preserving traditional practices and embracing technological innovation within Kerala's cooperative institutions.

[ix] The Uralungal Labour Contract Cooperative Society (ULCCS) stands out as an exception, warranting a detailed analysis to understand how innovations were introduced to address various challenges. However, since this study has a different focus, we have not explored this aspect in depth

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